

wing, occasionally with the inner edge just projecting into the white area ; on the costa just beyond reniform a large white quadrate patch from the base of which the geminate t. p. line arises and bends sharply inward below reniform and orbicular, almost reaching the margin of the dark area of wing ; from a point below the orbicular it turns towards the inner margin, forming two lunulate marks, the upper being the larger ; the space beyond the t. p. line is almost entirely filled with bluish purple ; s. t. line indistinct, marked with creamy at costa and in central area, incurved at vein 2 ; a broken terminal dark purple-brown line ; fringes bluish purple, cut with white opposite cell and between veins 2 and 3. Secondaries whitish with narrow smoky border in ♂, almost entirely smoky in ♀ ; fringes pale. Beneath, primaries smoky with the white patch of upper side marked in ochreous. Secondaries suffused with pale smoky brown, with a discal spot and indistinct postmedian line angled sharply opposite the cell. Expanse, 27 mm.

Habitat : White Mts., Ariz., 3 ♂s, 5 ♀s. Types, collection Barnes.

Closely related to *areli* Stkr.; differs in the much larger size of the white patch and the fact that the orbicular is not contained within the light area of wing.

(To be continued.)

THE OLDEST AMERICAN HOMOPTEROUS INSECT.

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With very few exceptions, the cretaceous strata of North America, so rich in various organic remains, have failed to yield insects. A cockroach from the Judith River Beds in Montana has been described as *Stantonella cretacea* (Handlirsch). A Protoblattoid from the Kootanie of Montana is called *Lygobius knowltoni* Mitchell. Beetle remains named *Archiorhynchus angusticollis* Heer, *Curculiopsis cretacea* (Heer), and *Elytrulum multipunctatum* (Heer), are from the lower cretaceous of Greenland, while one from the Pierre formation of Manitoba is named *Hylobiites cretaceus* Scudder. Egg-masses from the Laramie Beds of Colorado are called *Corydalites fecundus* Scudder. Considering the enormous time represented by the cretaceous, and the richness of the flora, it is certain that there must have existed a succession of insect-faunæ including innumerable types, almost all of which are now unknown to us. This is particularly unfortunate, because during this period the modern families of insects must have been in course of evolution. Tertiary insects we have in abundance, but they are not old enough to

afford much clue to the history of living groups; early mesozoic fossils, so far as found in this country, represent the least specialized of modern orders. In other parts of the world, cretaceous insects are also extremely scarce; of Homoptera, excepting some very dubious gall-like objects on *Eucalyptus* leaves, there is only a single species, the cicadid *Hyleoneura lignei* Lameere and Severian, from Belgium. The first American cretaceous Homopteron has just been found by Mr. Terry Duce in the Pierre formation at Lesser's brickyard, Boulder, Colorado. There is no doubt about the formation, as the specimen is in the same piece of rock as the characteristic mollusc *Scaphites nodosus* Owen. The formation is marine, but it was evidently laid down close to land, and the insect doubtless fell or was washed into the sea.

Petropteron mirandum, n. g., n. sp.

A tegmen or upper wing, the part preserved $7\frac{1}{2}$ mm. long, the actual length probably about $9\frac{1}{2}$; width near the middle about $4\frac{1}{2}$; shape subtriangular, broadly widening apically; veins strong, reddish brown, membrane apparently strong, no markings of any kind; venation as shown in the figure, the interpretation given being scarcely open to doubt, with the possible exception of the first anal, which may be in

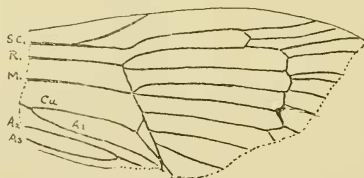


FIG. 4.—*Petropteron mirandum*, n. sp.

reality the inferior branch of the cubitus; there is no sign of a free first anal. There are two series of gradate veins, the inner placed somewhat as in *Dicranotropis*, the outer much as in the eocene genus *Eofulgorella*, and many living forms. The closed anal cell is normal for many Homoptera, and is exactly as in the European cretaceous *Hyleoneura*. The lower branch of the subcosta, although bulging in the direction of the radius near the beginning of the first series of gradate veins, is not connected with it by any cross-vein at this point. The triangular cell in the branches of the cubitus, contiguous with the first gradate series, finds a parallel in Kirkaldy's "restored" figure of *Aneono*. The basal union of cubitus and first anal is as in *Scolypopa*.

I suppose the insect to be a Fulgorid, and this possibility is supported by the occurrence of Fulgoridæ in the older Purbeck Beds of

England. It is quite possible, however, that it belongs to an extinct family.

The name *Petropteron* is in allusion to the Pierre formation.

P. S.—On renewed minute examination, I feel sure I see traces of the end of a free first anal. There seems to be a longitudinal fold or distortion which makes it impossible to follow it any distance toward the base.

BOOK NOTICE.

CONTRIBUTIONS TO THE NATURAL HISTORY OF THE LEPIDOPTERA OF NORTH AMERICA, by Dr. William Barnes and Dr. J. H. McDunnough, Decatur, Ill.

Under the above title have appeared the first two parts of a new and much needed work on the Lepidoptera of North America which will meet with the heartiest commendations from all corners of the continent.

Prior to the publication by Dr. Holland of "The Butterfly Book" and "The Moth Book," there were but few entomologists who could afford to possess, or were fortunate enough to have access to, the rare and expensive separate works and long sets of volumes of periodicals in which to look for figures and descriptions. These two books, and particularly the plates, for the text is of necessity very limited, have proved of the greatest help to beginners and the more advanced as well, and many of us ventured to hope that the time might soon come when a reliable figure of every known North American species would be available. Now after a wait of eight years, our expectations begin to be realized, as the "Contributions" are exactly what we most needed, namely, a series of monographic reviews of families or smaller groups, giving descriptions of all the species, references to the more important literature, placing the generic names on a more stable basis, and last, but not least, photographic figures of each and every species.

Part I deals with "The Cossidæ of North America" and consists of 35 pages of text and seven plates (three of structure and four of imagos) and an index. Part II is entitled "The Lasiocampid Genus *Gloveria* and Its Allies"—17 pages of text, one plate of venation and three plates of imagos and an index, and covers a little wider range of territory, species from Mexico and Central America being included.

The size of page conforms with Dr. Holland's books, the text is well printed on excellent paper and the illustrations are all on plate paper. Much care has evidently been taken to secure accurate reproductions and